California Regional Water Quality Control Board
North Coast Region

MONITORING AND REPORTING PROGRAM NO. R1-2003-0026

FOR

RUSSIAN RIVER COUNTY SANITATION DISTRICT
AND
SONOMA COUNTY WATER AGENCY
WASTEWATER TREATMENT AND DISPOSAL FACILITY

Sonoma County

WASTEWATER MONITORING

Composite samples may be taken by a proportional-sampling device approved by the Regional Water Board Executive Officer (Executive Officer) or by grab samples composited in proportion to flow. In compositing grab samples, the sampling interval shall not exceed one hour. The following shall constitute the wastewater monitoring program:

INFLUENT MONITORING

Constituent	Units	Type of Sample	Frequency
BOD (20°C, 5-day)	mg/l	8-hour composite	weekly
Suspended Solids	mg/l	8-hour composite	weekly
Flow (Peak, Mean)	mgd	meter	continuous

EFFLUENT MONITORING FOR DISCHARGES TO THE WATER RECYCLING SYSTEM

Samples are to be taken of treated disinfected effluent following disinfection and prior to discharge to the waste recycling system (Discharge Serial No. 002/003).

Constituent	Units	Type of Sample	Frequency
BOD (20°C, 5-day)	mg/l	8-hour composite	weekly
Suspended Solids	mg/l	8-hour composite	weekly
Settleable Solids	ml/l	grab	daily
Total Coliform Organisms	MPN/100 ml	grab	daily[1]
Flow (Mean)	mgd	meter	continuous

[1] When discharging to the recycled water system, samples shall be collected no less than once per day.

VISUAL MONITORING

The Permittees shall conduct surface inspections of the irrigation fields during and immediately after any discharge to the irrigation system. The Permittees shall record any odors, evidence of surface runoff, or other signs of malfunction or improper operation. The monthly monitoring report shall include the daily volume of treated wastewater discharged to the irrigaion fields and any observations indicating non-compliance with provisions of waste discharge requirements.

MONITORING DISCHARGE TO THE RUSSIAN RIVER

Unless otherwise indicated, monitoring requirements in this section apply to Discharge Serial No. 001 when there is a discharge to the Russian River. The discharge point shall be monitored for all of the constituents listed below during any discharge event.

Constituent	Units	Type of Sample	Frequency	Analytical Method [2]
BOD (20°C, 5-day)	mg/l	8-hour composite	weekly	Standard Methods [3]
Suspended Solids	mg/l	8-hour composite	weekly	Standard Methods
Settleable Solids	ml/l	grab	daily	Standard Methods
Total Coliform Organisms	MPN/100 ml	grab	daily[4]	Standard Methods
Hydrogen Ion	pH	grab	daily	Standard Methods
Chlorine Residual[5]	mg/l	grab	daily	Standard Methods
Temperature	°F or °C	grab	daily	Standard Methods
Copper	µg/l	grab	monthly	EPA Method 200
Chloroform	µg/l	grab	monthly	EPA Method 624
Chlorodibromomethane	µg/l	grab	monthly	EPA Method 624
Dichlorobromomethane	µg/l	grab	monthly	EPA Method 624
Lead	µg/l	grab	annual	EPA Method 200
Benzo(a) pyrene	µg/l	grab	annual	SW8270D

[2] In accordance with Section 2.4 of the SIP, the Permittees shall report the ML and MDL for each sample result. The ML shall be selected from Appendix 4 of the SIP. The laboratory's current MDL shall be determined by the procedure found in 40 CFR 136 (revised as of May 14, 1999).

[3] In accordance with the current edition of Standard Methods for the Examination if Water and Wastewater (American Public Health Administration) or current test procedures specified in 40 CFR Part 136.

[4] During the period of October 1 through May 14, samples shall be collected a minimum of three days per week at a point following disinfection and prior to discharge to the storage pond. Monitoring samples shall be collected daily when discharging to the Russian River until the discharge is in compliance with Other Requirements H.2(b)(i)), and thereafter only in accordance with Other Requirements H.2(a)(ii). When discharging to the recycled water system, samples shall be collected no less than once per day.

[5] Samples collected to demonstrate complete dechlorination shall be collected at a point following disinfection and prior to discharge to the Russian River. All chlorine residual measurements shall be reported as total chlorine residual.

Heptachlor epoxide	µg/l	grab	annual	EPA Method 608
Constituent	**Units**	**Type of Sample**	**Frequency**	**Analytical Method [6]**
Acute Toxicity Bioassay[7]		grab	monthly	See section below
Chronic Toxicity Bioassay	TUc	grab	annually	See section below
CTR Priority Pollutants[8]	µg/l	grab	Every 5 years	Not specified
Flow (Mean)	mgd	meter[9]	continuous	Not applicable

EFFLUENT ACUTE TOXICITY MONITORING

Effluent acute toxicity monitoring requirements as specified in General Provision K.24 of Waste Discharge Requirements Order No. R1-2003-0026 apply to Discharge Serial No. 001 when there is a discharge to the Russian River.

1. Acute Toxicity Monitoring Requirements

   a. Sampling: The Permittees shall collect grab samples of treated effluent discharged to Discharge Serial No.001 for acute toxicity testing as indicated below. For the 96-hour static renewal toxicity tests, grab samples collected on consecutive days are required. For the 96-hour static non-renewal test, only one grab sample is required.

   b. Test Species: The Permittees shall conduct 96-hour static renewal or static non-renewal tests with an invertebrate, the water flea, *Ceriodaphnia dubia*, and a vertebrate, the rainbow trout, *Orncorhychus mykiss*, for the first two suites of tests. After this screening period, monthly monitoring shall be conducted using the most sensitive species. The Permittees shall re-screen once with the two species listed above and continue to monitor with the most sensitive species at least once every five years.

   c. Methodology: Sample collection, handling and preservation shall be in accordance with EPA protocols. The presence of acute toxicity shall be estimated as specified in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (U.S. EPA Report No. EPA 600/4-90-027F, 4th edition or subsequent editions), or other methods approved by the Executive Officer. A concurrent reference toxicant test shall be performed for each test.

[6] In accordance with Section 2.4 of the SIP, the Permittees shall report the ML and MDL for each sample result. The ML shall be selected from Appendix 4 of the SIP. The laboratory's current MDL shall be determined by the procedure found in 40 CFR 136 (revised as of May 14, 1999).

[7] Acute toxicity shall be reported as in either TUa or as Percent Survival, in accordance with General Provision K.24 of Waste Discharge Requirements Order No. R1-2003-0026.

[8] In accordance with Section 1.3 of the SIP, the Permittees shall conduct receiving water and ambient monitoring (at least once prior to the reissuance its NPDES permit) for priority pollutants for which water quality criteria or objectives apply and for which no effluent limitations have been established.

[9] The recorded data shall be maintained by the Permittees for at least three years.

d. Dilution Series: Where the LC50 is calculated, the Permittees shall conduct tests of effluent at 100 percent, 75 percent, 50 percent, 25 percent, and 12.5 percent of its initial strength. Dilution and control waters shall be obtained from an area unaffected by the discharge in the receiving waters. Standard dilution water may be used if the above sources exhibit toxicity or if approved by the Executive Officer. Where the t-test is used instead of the LC50, the Permittees shall conduct tests using 100 percent effluent and a control.

e. Conditions for Accelerated Monitoring: The Permittees shall conduct accelerated monitoring as described in General Provision K.24(c) of Waste Discharge Requirements Order No. R1-2003-0026 in the event of the following conditions:

1) Single sample bioassay result less than 70 percent survival
2) Median for any three or more consecutive bioassays less than 90 percent survival

2. Acute Toxicity Reporting Requirements

a. Routine Reporting: Toxicity test results for the current reporting period shall include, at a minimum, for each test:

1. sample date(s) and location
2. test initiation date
3. test species
4. end point values for each dilution, if applicable
5. NOEC value(s) in percent effluent
6. TUa values (100/NOEC)
7. Mean percent mortality (± s.d.) after 96 hours in 100 percent effluent, if applicable
8. NOEC and LOEC values for reference toxicant test(s)
9. Available water quality measurements for each test (ex. pH, DO, temperature, conductivity, hardness, salinity, ammonia)

b. Compliance Summary: The results of the acute toxicity testing shall be provided in the most recent self-monitoring report and shall include a summary table of acute toxicity data from at least three of the most recent samples. The information in the table shall include the items listed above under 2.a., item numbers 1, 3, 5, 6, 7, and 8.

EFFLUENT CHRONIC TOXICITY MONITORING

Effluent chronic toxicity monitoring requirements as specified in General Provision K.25 of Waste Discharge Requirements Order No. R1-2003-0026 apply to Discharge Serial No. 001 when there is a discharge to the Russian River.

1. Chronic Toxicity Monitoring Requirements

   a. Sampling: The Permittees shall collect grab samples of treated effluent discharged to Discharge Serial No. 001 for critical life stage toxicity testing as indicated below. For toxicity tests requiring renewals, grab samples collected on consecutive days are required.

   b. Test Species: Chronic toxicity shall be monitored by using critical life stage tests and the most sensitive test species identified by screening phase testing in General Provision K.25 of Waste Discharge Requirements Order No. R1-2003-0026. The use of a different test species, in lieu of conducting tests using the required test species may be considered/approved by the Executive Officer on a case-by-case basis upon submittal of the documentation supporting the Permittees' determination that a different species is more sensitive and appropriate. Two test species may be required if test data indicate that there is alternating sensitivity between the two species.

   c. Frequency: The Permittees shall collect samples of the treated effluent discharged through Discharge Serial No. 001 once during the discharge season, while discharging.

   d. Conditions for Accelerated Monitoring: The Permittees shall conduct accelerated monitoring as described in General Provision K.25 and General Provision K.27 of Waste Discharge Requirements Order No. R1-2003-0026 when either of the following conditions are exceeded:

      1. Three-sample median value of 1.0 TUc, or
      2. Single-sample maximum value of 2.0 TUc.

   e. Methodology: Sample collection, handling and preservation shall be in accordance with EPA protocols. The test methodology used shall be in accordance with the references cited in this Permit, or as approved by the Executive Officer. A concurrent reference toxicant test shall be performed for each test.

   f. Dilution Series: The Permittees shall conduct tests of effluent at 100 percent, 75 percent, 50 percent, 25 percent, and 12.5 percent of its initial strength. Dilution and control waters shall be obtained from an area unaffected by the discharge in the receiving waters. Standard dilution water may be used if the above sources exhibit toxicity or if approved by the Executive Officer.

2. Chronic Toxicity Reporting Requirements

   a. Routine Reporting: Toxicity test results for the current reporting period shall include, at a minimum, for each test:

      1. sample date(s)

2. test initiation date
3. test species
4. end point values for each dilution (e.g., number of young, growth rate, percent survival)
5. NOEC value(s) in percent effluent
6. IC_{15}, IC_{25}, IC_{40}, and IC_{50} values (or EC_{15}, EC_{25}…etc.) in percent effluent
7. TUc values (100/NOEC, 100/IC_{25}, 100/ EC_{25})
8. Mean percent mortality (±s.d.) after 96 hours in 100 percent effluent (if applicable)
9. NOEC and LOEC values for reference toxicant test(s)
10. IC_{50} or EC_{50} value(s) for reference toxicant test(s)
11. Available water quality measurements for each test (ex. pH, DO, temperature, conductivity, hardness, salinity, ammonia)

b. Compliance Summary: The results of the chronic toxicity testing shall be provided in the most recent self-monitoring report and shall include a summary table of chronic toxicity data from at least three of the most recent samples. The information in the table shall include the items listed above under 2.a., item numbers 1, 3, 5, 6 (IC_{25} or EC_{25}), 7, and 8.

RECEIVING WATER MONITORING

During the discharge season, samples shall be taken upstream[10] and downstream[11] of the point of discharge, at locations approved by the Executive Officer. The receiving water shall be monitored for all of the constituents or parameters listed below during any discharge event:

Constituent	Units	Type of Sample	Frequency
BOD (20°C, 5-day)	mg/l	grab	monthly
Dissolved Oxygen	mg/l	grab	monthly
Hydrogen Ion	pH Units	grab	monthly
Turbidity	NTU	grab	monthly
Temperature	°F or °C	grab	weekly
Hardness	mg/l as $CaCO_3$	grab	monthly
Flow (daily)[12]	cfs or mgd	meter	daily

[10] The upstream sampling point shall be located at Vacation Beach, approximately 1,000 feet upstream of the WWTF. A new upstream monitoring location may be substituted in the future, if it is determined that measurements at the new location are more representative of conditions at the point of discharge.

[11] The downstream monitoring location shall be located adjacent to the Northwood Golf Club approximately 300 feet downstream of the point of discharge. A new downstream monitoring location may be substituted in the future, if it is determined that measurements at the new location are more representative of conditions at the point of discharge.

FILTRATION PROCESS MONITORING

Filtration process monitoring shall demonstrate compliance with Section H.1 of Waste Discharge Requirements Order No. R1-2003-0026 and applies to all treated wastewater flows.

1. Filtration Monitoring Requirements

    a. Monitoring: The turbidity of the filter effluent shall be continuously measured and recorded. Should the continuous turbidity meter and recorder fail, grab sampling at a minimum frequency of 1.2 hours may be substituted for a period of up to 24 hours. The recorded data shall be maintained by the Permittees for at least three years. The daily average, and daily maximum turbidity results shall be reported on the monthly monitoring reports.

    b. Compliance: Compliance with the daily average effluent turbidity limitation specified in Section H.1(a)(i) of Order No. R1-2003-0026 shall be determined by averaging all turbidity readings collected in a calendar day. Compliance with the effluent turbidity limitation specified in Section H.1(a)(ii) of Order No. R1-2003-0026 shall be determined using the levels of recorded turbidity taken at intervals of no more than 1.2 hours over a 24-hour period.

    c. Reporting: If the filter effluent turbidity exceeds 2 NTU based on a daily average, or if the influent turbidity exceeds 5 NTU for more than 15 minutes, the Permittees shall report the incident on the monthly self-monitoring report. If the filter effluent turbidity exceeds 10 NTU at any time, the Permittees shall report the incident as required by General Provision K.12(g) of Order No. R1-2003-0026. The report submitted in accordance with General Provision K.12(g) shall describe the measures taken to bring the discharge into immediate compliance or to divert wastewater to temporary storage or to an upstream process unit.

DISINFECTION PROCESS MONITORING

Disinfection process monitoring shall demonstrate compliance with Section H.2 of Waste Discharge Requirements Order No. R1-2003-0026 and applies to all treated wastewater flows.

1. Disinfection Process Monitoring Requirements

    a. Monitoring: The chlorine residual of the effluent from the chlorine contact chamber shall be monitoring continuously at a point prior to dechlorination and recorded.

[12] The daily flow of the Russian River shall be measured at the U.S. Geological Survey gauge at the Hacienda Bridge. A new flow gauging location may be substituted in the future, if it is determined that flow measurements at the new location are more representative of flow conditions at the point of discharge.

b. Tracer Study: For purposes of calculating and demonstrating compliance with the CT requirement, the Permittees shall complete tracer studies under four different flow rates (the maximum, the minimum, and two points in between) to determine the respective modal contact time at the chlorine contact basin. The studies shall follow the protocol outlined in *Tracer Studies in Water Treatment Facilities: A Protocol and Case Studies* published by the American Water Works Association Research Foundation. A curve of flow rate vs. modal contact time, based on study results, shall be used for estimating the modal contact time at a given flow rate, which is essential for the CT calculation. A final report on the tracer studies shall be submitted to the Department of Health Services and the Regional Water Board.

After completion of the tracer studies, compliance with the CT requirements shall be demonstrated in accordance with the following method, or with an alternative, but equivalent, method approved by the Department of Health Services and the Regional Water Board:

c. Compliance: Compliance with the CT requirement specified in Section H.2 of Order No. R1-2003-0026 shall be determined as follows:

Each day, the discharger will calculate the CT values for the following conditions:

1. Modal contact time under highest daily flow and corresponding chlorine residual.
2. Modal contact time under lowest daily flow and corresponding chlorine residual.
3. Lowest chlorine residual and corresponding modal contact time.
4. Highest chlorine residual and corresponding modal contact time.

The lowest calculated CT value under the aforementioned conditions shall be reported as the daily CT value on the monthly monitoring report.

In the interim period before the completion of tracer studies, the theoretical retention time based on the volume of the chlorine contact basin and the design flow rate shall be used as the modal contact time in the calculation of CT.

d. Reporting: If the lowest calculated CT value of the effluent from the disinfection system is less than 450 milligrams-minute per liter, then the Permittees shall report the incident as required by General Provision K.12(g) of Order No. R1-2003-0026. The report shall describe the measures taken to bring the discharge into immediate compliance or to divert wastewater to temporary storage or to an upstream treatment unit.

MONTHLY REPORT

The purpose of the report is to document treatment performance, effluent quality and compliance with waste discharge requirements prescribed by Order No. R1-2003-0026. For each calendar month, a self-monitoring report shall be submitted to the Regional Water Board in accordance with the following:

1. The report shall be submitted by the first day of the second month following sampling.

2. *Letter of Transmittal*: Each Report shall be submitted with a letter of transmittal. This letter shall include the following:

   a. Identification of facility: Name, address, WDID number;
   b. Date of report and monitoring period;
   c. Identification of all violations of effluent limitations or other discharge requirements found during the monitoring period;
   d. Details of the violations: parameters, magnitude, test results, frequency, and dates;
   e. The cause of the violation;
   f. Discussion of corrective actions taken or planned to resolve violations and prevent recurrence, and dates or time schedule of action implementation.
   g. Authorized signature and certification statement

3. *Compliance Evaluation Summary*: Each report shall include a compliance evaluation summary. The summary shall illustrate clearly the facility's compliance with all effluent limitations and other waste discharge and reclamation requirements, as required. During periods of no discharge, the reports shall certify no discharge.

4. *Results of Analyses and Observations*

   a. Tabulations of all required analyses, including parameter, sample date and time, sample station, and test result;
   b. If the Permittees monitor any pollutant more frequently than required by this Permit, using test procedures approved under 40 CFR Part 136 or as specified in this Permit, the results of this monitoring shall be included in the calculation and report of the data submitted in the discharger monitoring report.
   c. Calculation of all effluent limitations that require averaging, taking of a median, or other calculation.

5. *Report Submittal*: Copies of each monitoring report shall be mailed to:

   North Coast Regional Water Quality Control Board
   5550 Skylane Boulevard, Suite A
   Santa Rosa, CA 95403

ANNUAL REPORT

The Permittees shall submit an annual report to the Regional Water Board for each calendar year. The report shall be submitted by March 1st of the following year. The report shall include, at a minimum, the following:

1. Both tabular and, where appropriate, graphical summaries of the monitoring data and disposal and reclamation records from the previous year.

2. Source control activities as required by Section J of Waste Discharge Requirements Order No. R1-2003-0026.

3. Collection system activities as required by General Provision 16(d) of Waste Discharge Requirements Order No. R1-2003-0026.

4. A comprehensive discussion of the facility's compliance with all effluent limitations and other waste discharge and reclamation requirements, and the corrective actions taken or planned, which may be needed to bring the discharge into full compliance with the Permit.

Ordered by _____

Catherine E. Kuhlman
Executive Officer

November 5, 2003

(RRCSD M&R2)